IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
Before the Board of Patent Appeals and Interferences

In re Patent Application of: HALE, Laura P.
Serial No. 10/627,966
Filed: July 28, 2003
Title: A METHOD OF MODULATING MELANIN PRODUCTION

Atty Dkt. MJW-01579-0852
C# M#
Confirmation No. 2269
TC/A.U.: 1642
Examiner: Reddig, P.J.
Date: April 28, 2008

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Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

☐ **Correspondence Address Indication Form Attached.**

☐ **NOTICE OF APPEAL**
Applicant hereby **appeals** to the Board of Patent Appeals and Interferences from the last decision of the Examiner twice/finally rejecting applicant's claim(s). $510.00 (1401)/$255.00 (2401) $

☒ An appeal **BRIEF** is attached in the pending appeal of the above-identified application $510.00 (1402)/$255.00 (2402) $ 255.00

☐ Credit for fees paid in prior appeal without decision on merits -$ ( )

☐ A reply brief is attached. **(no fee)**

☒ Petition is hereby made to extend the current due date so as to cover the filing date of this paper and attachment(s)
One Month Extension $120.00 (1251)/$60.00 (2251)
Two Month Extensions $460.00 (1252)/$230.00 (2252)
Three Month Extensions $1050.00 (1253/$525.00 (2253)
Four Month Extensions $1640.00 (1254/$820.00 (2254) $ 820.00

☐ "Small entity" statement attached.

Less month extension previously paid on -$( )

TOTAL FEE ENCLOSED $ 1075.00

☒ **CREDIT CARD PAYMENT FORM ATTACHED.**

Any future submission requiring an extension of time is hereby stated to include a petition for such time extension. The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our **Account No. 14-1140.** A duplicate copy of this sheet is attached.

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NIXON & VANDERHYE P.C.
By Atty: Mary J. Wilson, Reg. No. 32,955

Signature: Mary J. Wilson

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APPEAL BRIEF

Sir:

Appellant hereby appeals the final rejection of claims 2, 6, 12 and 13, in the Office Action dated June 26, 2007, and submits the present Appeal Brief pursuant to 37 CFR § 41.37. A Notice of Appeal was filed October 26, 2007, the date for filing an Appeal Brief having been extended up to April 26, 2008, by submission of the required petition and fee herewith.

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(1) REAL PARTY IN INTEREST

The real party in interest is Duke University, Durham, North Carolina 27708-0083, by way of an Assignment from the inventor to Duke University, Durham, North Carolina 27708-0083, recorded in the U.S. Patent and Trademark Office on July 20, 2004, at Reel 015587, Frame 0788.

(2) RELATED APPEALS AND INTERFERENCES

Appellant, Appellant's legal representative, and the assignee are not aware of any related prior or pending appeals or interferences or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

(3) STATUS OF THE CLAIMS

Claims 2, 4, 6 and 8-13 are pending in the application. Claims 2, 6, 12 and 13 have been finally rejected and claims 4 and 8-11 stand withdrawn from consideration. Claims 1, 3, 5 and 7 have been cancelled.

Claims 2, 6, 12 and 13 are the subject of the present appeal. A copy of claims 2, 6, 12 and 13 is attached as a Claims Appendix, pursuant to Rule 41.37(c)(1)(viii).

(4) STATUS OF THE AMENDMENTS

No Amendment Under Rule 116 was filed in response to the final Office Action dated June 26, 2007.

(5) SUMMARY OF CLAIMED SUBJECT MATTER

The present invention, as defined in claim 2, relates to a method of inhibiting melanin synthesis in the skin of a patient. The method comprises administering directly to the skin of the patient an amount of ZAG sufficient to effect the inhibition. Support for the method of claim 2 can be found, for example, at page 6, lines 4 and 5 and lines 7-9, and in claims 2, 3 and 5 as originally filed.

Claim 6 depends from claim 2 and indicates that the patient suffers from hyperpigmentation. Support for claim 6 can be found, for example, at page 6, lines 5 and 6, and in claims 2, 3, 5 and 6 as originally filed.

Claim 12 depends from claim 6 and indicates that the hyperpigmentation results from sun exposure, inflammation or scarring. Claim 12 finds support in the same manner as claim 6 taken with, for example, the disclosure at page 6, lines 5 and 6.

Claim 13 also depends from claim 6 and indicates that the patient suffers from a disorder associated with congenital or acquired proliferation of melanocytes. Claim 13 finds support in the same manner as claim 6 taken with, for example, the disclosure at page 6, lines 5-7.

(6) GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The following ground of rejection is presented for review:

Whether claims 2, 6, 12 and 13 are non-enabled under 35 USC 112, first paragraph.

(7) ARGUMENT

ENABLEMENT (35 USC 112, FIRST PARAGRAPH)

The subject matter of claims 2, 6, 12 and 13 is fully supported by an enabling disclosure. Accordingly, reversal of the rejection of claims 2, 6, 12 and 13 under 35 USC 112, first paragraph, as allegedly being non-enabled is requested.

The claims on appeal are drawn to a method of inhibiting melanin synthesis in the skin of a patient comprising administering directly to the patient's skin an amount of ZAG sufficient to effect the inhibition.

In rejecting the claims as non-enabled the Examiner contends that one cannot extrapolate from the teachings of the specification to the claimed method. In support of this assertion, the Examiner states:

> It is well know in the art that *in vitro* cultured cells have different characteristics than cells in the *in vivo* host animal.

The Examiner cites selected portions of Freshney, Dermer and Gura as basis for the statement. Appellant offers the following in connection with these documents.

Appellant acknowledges that Freshney (copyright 1983) makes reference to general differences between behavior of cultured cells and the counterparts *in vivo*. Importantly, however, Freshney also states:

> "Although the existence of such differences cannot be denied, it must be emphasized that many specialized functions are expressed in culture and as long as the limits

> of the model are appreciated, it can become a very valuable tool"

(page 4, right column, second full paragraph).

In citing Dermer (a reference from 1994), the Examiner appears to be contending that because Dermer states that, in his opinion, "cell lines in which cancer is usually studied are unsuitable for the job", there are no meaningful cell culture models. Such an assertion is clearly without merit.

Gura describes past problems in cancer drug discovery and includes a discussion of approaches being taken to develop better cancer models and the importance of defining molecular targets. By contrast, the present invention relates to a method of inhibiting melanin synthesis in the skin of a patient. The Examiner has failed to provide any nexus between the teachings of Gura relating to drug discovery and the method of the instant claims. Absent such a nexus, the Examiner's reliance on Gura is clearly not well founded.

In rejecting the claims as non-enabled, the Examiner also contends that undue experimentation would be required to determine the amount of ZAG sufficient to inhibit melanin synthesis by topical administration of ZAG. The Examiner cites Poorsmans and Lei et al. The relevance of these references to the Examiner's point is not seen. It would be a matter of routine for one skilled in the art to determine an appropriate amount of ZAG to be administered to the skin of a patient. The amount

selected would be that which provided the effect sought. No invention would be required to make that selection.

Further, the Examiner states in the Office Action dated June 26, 2007 (page 4, lines 9-14) that:

> "Poortsman and Lei teach the ZAG is at high levels in the endogenous skin, thus one of skill in the art would not predictably expect that additional ZAG would have an effect on melanin synthesis in vivo given the presence of already high levels of ZAG in the skin which one would be expected to have already exerted any potential effects on melanin synthesis that ZAG might have"

This statement is mere conjecture on the part of the Examiner. It is wholly unsupported by evidence and is not proper basis for the rejection.

Attention is directed to the fact that the Example provided in the application is based, at least in part, on the use of a widely used model of melanocyte function, B16 melanoma cells (see page 7, lines 1-3). The Examiner contends that Dermer and Freshney provide evidence why effects in this system cannot be predictably extrapolated to *in vivo* therapies. This contention is without basis since neither Freshney nor Dermer are seen to offer <u>any</u> comment regarding B16 cells, much less do they include any teaching that would undermine the usefulness of these cells as a model of melanocyte function. Appellant has, in fact, made of record during prosecution publications demonstrating the well-established nature of this model (see Jiménez-Cervantes et al, J. Cell Sci. 114:2335 (2001) (page 2339, last paragraph of

Introduction) and validation of that model (Martinez-Esparza et al, Int. J. Biochem. Cell Biol. 33:971 (2001)) .

Finally, attention is directed to the fact that the Example provided in the application includes a description of the inhibition by ZAG of melanin synthesis by normal melanocytes (see page 19). As pointed out, these studies indicate that ZAG has similar effects on melanin production in both normal and malignant melanocytes.

It is now well settled that a patent applicant enjoys the presumption that his/her invention can be practiced as claimed. The burden is on the examiner to provide evidence to the contrary. No such evidence has been provided here. Accordingly, reversal of the rejection based on lack of enablement is requested.

In view of the foregoing, it will be clear that the claims are in condition for allowance and reversal of the final rejection is, therefore, requested.

Respectfully submitted,

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(8) CLAIMS APPENDIX

2. A method of inhibiting melanin synthesis in the skin of a patient comprising administering directly to said skin of said patient an amount of ZAG sufficient to effect said inhibition.

6. The method according to claim 2 wherein said patient suffers from hyperpigmentation.

12. The method according to claim 6 wherein said hyperpigmentation results from sun-exposure, inflammation or scarring.

13. The method according to claim 6 wherein said patient suffers from a disorder associated with congenital or acquired proliferation of melanocytes.

(9) EVIDENCE APPENDIX

(NONE)

(10) RELATED PROCEEDINGS APPENDIX

(NONE)